

CLAIMS

1. A system for displaying securities market transaction information received from a securities exchange market data system comprising:

5 an exchange server operatively coupled to the securities exchange market data system and adapted to receive therefrom transaction information and order book information relating to at least one security, said transaction information including price and volume of at least one trade in said security; and

a trader workstation operatively coupled to said exchange server;

10 said exchange server being further adapted to transmit to said trader workstation a selectable portion of said transaction information and order book information relating to said at least one security;

said trader workstation being adapted to display for each trade of a user-selected security within a user-selected range of trades represented in said transaction information an indicium representing said price of such trade;

15 said trader workstation being adapted to determine responsive to said transaction information and said order book information whether said trade was seller-initiated or buyer-initiated, and responsive to said determination to control appearance of said indicia to distinguish between buyer-initiated and seller-initiated trades; and

20 said trader workstation being adapted to display at least a subset of said order book information relating to said user-selected security adjacent said indicia.

2. The system of claim 1 wherein said trader workstation is further adapted to group said trades into one or more auction events, the trades in each auction event being related to one another as determined by user-selectable criteria, and wherein for each of said auction events, said indicia corresponding to all trades grouped into such auction event are displayed adjacently.

25 3. The system of claim 2 wherein said trader workstation is further adapted to display an indicium identifying the beginning of each auction event of which a displayed trade is a member.

4. The system of claim 3 wherein said trader workstation is further adapted to compare transaction information regarding each trade of said user-selected security to user-specified criteria and provide a sound cue corresponding to trades satisfying said criteria.

30 5. A method for use with a trader workstation for displaying securities market transaction information comprising the steps of:

a. receiving transaction information regarding a selected security, said information including price of at least one trade;

b. receiving order book information regarding a selected security;

- c. determining responsive to said transaction information and said order book information whether each of a user-selected range of trades represented in said transaction information was seller-initiated or buyer-initiated;
- d. displaying for each trade of a user-selected security within said user-selected range of transactions represented in said transaction information an indicium representing said price of such trade, said indicium having an appearance distinguishing between buyer-initiated and seller-initiated trades; and
- e. displaying at least a subset of said order book information relating to said user-selected security adjacent said indicia.

10 6. The method of claim 5 wherein said step d. thereof further comprises the step of: displaying said trades in a two-dimensional chart having a first axis representing trade price and a second axis representing time.

7. The method of claim 5 further comprising the step of: grouping said trades into one or more auction events, the trades in each auction event 15 being related to one another as determined by user-selectable criteria; and wherein said step d. thereof further comprises the step of: displaying said trades in a two-dimensional chart having a first axis representing trade price and a second axis representing time of initiation of an auction event.

8. The method of claims 6 or 7, wherein said order book information includes at least 20 one proposed transaction price, and said step e. thereof further comprises the step of: displaying at least a subset of said order book information adjacent said first axis such that said at least one proposed transaction price is aligned with a position corresponding to said proposed transaction price on said first axis.

9. A method for use with a trader workstation for displaying securities market 25 transaction information comprising the steps of: receiving transaction information regarding a selected security, said information including price of a plurality of trades;

receiving order book information regarding a selected security;

determining responsive to said transaction information and said order book information 30 whether each of a user-selected range of trades represented in said transaction information was seller-initiated or buyer-initiated;

grouping said trades into one or more auction events, the trades in each auction event being related to one another as determined by user-selectable criteria;

displaying for each trade of a user-selected security within said user-selected range of 35 transactions represented in said transaction information an indicium representing said price of

such trade, said indicium having an appearance distinguishing between buyer-initiated and seller-initiated trades, wherein for each of said auction events, the indicia corresponding to all trades grouped into such auction event are displayed adjacently; and

5 displaying an indicium identifying the beginning of each auction event of which a displayed trade is a member.

10 10. The method of claim 9, further comprising the step of determining, for each of said auctions, a trend status value describing the trades of such auction, said trend status value being responsive to whether volume of said trades determined to be seller-initiated exceeds volume of said trades determined to be buyer-initiated.

11 11. The method of claim 9, further comprising the step of determining, for each of said auctions, a trend status value describing the trades of such auction, said trend status value being responsive to a comparison between a bid price of said selected security and a volume-weighted average price of the trades of such auction.

12 12. The method of claim 9, further comprising the step of determining, for each of said auctions, a trend status value describing the trades of such auction, said trend status value being responsive to a comparison a volume-weighted average price of the trades of such auction and a bid price in a cash market for a security underlying said selected security.

13 13. The method of claim 9, further comprising the step of determining, for each of said auctions, a trend status value describing the trades of such auction, said trend status value responsive to a comparison between a volume-weighted average price of the trades of such auction and the volume-weighted average price of outstanding bid orders.

14 14. The method of claim 9, further comprising the step of determining, for each of said auctions, a trend status value describing the trades of such auction, said trend status value responsive to a comparison between a volume-weighted average price of the trades of such auction and the volume-weighted average price of outstanding ask orders.

15 15. A method for use with a trader workstation for providing securities market transaction information to a trader comprising the steps of:

receiving transaction information regarding a selected security, said information including price of a plurality of trades;

30 receiving order book information regarding a selected security;

determining responsive to said transaction information and said order book information whether each of a user-selected range of trades represented in said transaction information was seller-initiated or buyer-initiated;

35 displaying for each trade of a user-selected security within said user-selected range of transactions represented in said transaction information an indicium representing said price of

such trade, said indicium having an appearance distinguishing between buyer-initiated and seller-initiated trades; and

comparing transaction information regarding each trade of said user-selected security to user-specified criteria and providing a sound cue corresponding to trades satisfying said criteria.

5 16. The method of claim 15 further comprising the steps of:

grouping said trades into one or more auction events, the trades in each auction event being related to one another as determined by user-selectable criteria; and

providing a sound cue corresponding to initiation of a new auction event.

10 17. A method for providing security exchange information to traders, comprising the steps of:

A) receiving security exchange trading information, comprising:

1) price of each trade,

2) quantity of each trade, and

3) time of each trade

15 B) receiving security exchange market information, said security information comprising:

1) bid order price(s),

2) ask order price(s), and

3) quantities of said bid order(s) and said ask order(s)

C) comparing said exchange market and trading information, comprising the steps of:

20 1) deriving and assigning a buy order attribute to trades executed at or above the most recent lowest ask order price prior to each transaction, and

2) deriving and assigning a sell order attribute to trades executed at or below the most recent highest bid order price prior to each transaction, and

25 3) deriving and assigning a neutral attribute to trades executed between the most recent lowest ask order price and the most recent highest bid order price prior to each transaction

D) displaying security exchange market and trading information on a display screen or screens, said screen(s) comprising:

30 1) a chart with price on the vertical axis and time on the horizontal axis plotting each trade with an upward or downward triangle, arrow or similar iconic shape indicating if the order originated as a buy or as a sell order, or a diamond or other iconic shape if an order cannot be determined to be either originating as a buy or as a sell order due to matching of orders inside the spread between the last known best bid price and the last known best offer price.

18. The method in claim 17, and including the step of:

35 displaying each triangle, arrow, diamond or other symbolic shape in various colors, borders, patterns, shades, or including numbers to indicate different trade quantities.

19. The method in claim 17, and including the step of:

displaying each triangle, arrow, diamond or other symbolic shape in various colors, borders, patterns, shades, numbers, or including other iconic shapes to indicate the identity of buyers and sellers, with blue or green colors most commonly used to indicate buyers and red, 5 orange or purple colors most commonly used to indicate sellers.

20. The method in claim 17, and including the step of:

generating color coding for related displays where indication of buying and selling or buyer and seller activity is possible, including the use of blue or green color coding to indicate buyers, and the use of red, orange or purple colors to indicate sellers, in data listings showing 10 times, quantities and prices of trades, known as time and sales displays in security trading, and the use of blue or green color coding to indicate filled or pending working buy orders, and the use of red, orange or purple colors to indicate filled or pending working sell orders, corresponding to a trader's trading activity.

21. The method in claim 17, and including the step of:

15 displaying each triangle, arrow, diamond or other symbolic shape with a circle or box drawn around, or distinguishing the icon through other display mechanisms such as using a different foreground or background color, or using a bolder, brighter or flashing presentation, to indicate a trade by the trader using the system.

22. The method in claim 17, and including the step of:

20 generating a listing directly next and integral to the vertical axis of the chart displaying the quantities of bid/ask orders at the prices corresponding to the price scale of the vertical axis.

23. The method in claim 22, and including the step of:

25 entering trade orders to buy or sell a predetermined quantity of a security by scrolling with a computer pointing device, such as a mouse or track ball, over the depth-of-market bid/ask order listing and clicking or selecting the desired price with the computer pointing device buttons. Generally, a computer mouse is set-up such that one button enters a buy order and the second button enters a sell order. Additional buttons may be assigned related functions, such as canceling limit orders not yet filled by an exchange, so that a trader can quickly re-enter an order with a new limit order price.

30 24. The method in claim 17, and including the step of:

generating, in the case of futures and derivatives markets, a plotting of the trade prices and best bid/ask prices of underlying cash, equity or basis markets as a real-time overlay displayed on the same chart as the chart displayed in claim 17.

25. The method in claim 17, and including the step of:

generating audible sound tones at pre-specified frequencies, duration, and combination, or playback of pre-recorded sound files or messages, as trades are plotted and depending on pre-specified trading actions or trading filters to coincide with a trader's trading activity such as placing an order, getting an order filled, or canceling an order, or to coincide with other 5 identifiable trader orders, or to coincide with general market trading, including as an indicator of buyer or seller trading, quantity traded, or a change in the depth-of-market book of bid/ask quantities and prices, or related trading or a change the depth-of-market book of bid/ask quantities and prices in underlying cash markets.

26. The method in claim 17, and including the step of:

10 delivering and processing market data using a standard data structure for data from all exchanges and for all products traded, called a Universal Data Structure (UDS), or similar name, to allow for standard data processing according to the method in claim 17 regardless of any content, time or other differences in actual data sources.

27. The method in claim 17, and including the step of:

15 authorizing each trader through a subscription and personalization process to receive and process according to the method in claim 17 only specified market data based on criteria applied by a broker, clearing firm or other system administrator, and to further limit trade order entry by a trader based on specified trading accounts, products, order quantities, trading positions and profit and loss filters.

20 28. The method in claim 17, and including the step of:

generating summary statistics based on market and trading data related to the method in claim 17, including calculations for the total quantity of trading during an auction event and the total quantities of buyer and seller initiated trading during an auction event, and the ratio of the quantities of buyer to seller initiated orders, and similar calculations for the total quantity of 25 orders in the depth-of-market book of outstanding orders, and the total quantities of bid and ask orders in the depth-of-market book of outstanding orders, and the ratio of the quantities of bid and ask orders, and the derivative ratio of the buyer/seller initiated orders ratio to the bid/ask orders ratio.

29. The method in claim 17, and including the step of:

30 generating a color bar or similar symbol along the horizontal time axis to indicate separation and time duration of auction events based on groups of trades determined from pre-defined filters for the number, direction, magnitude/amount of price change, time lapse or similar criteria which can be applied to separate sequential trades into logical groups.

30. The method in claim 29, and including the additional steps of:

displaying additional charts to present summaries of trading auctions, said charts comprising:

- 1) auction events displayed as vertical bars on a separate auction chart where the vertical axis is for price, the horizontal axis is for time, and the auction bars show the low to high price range, and volume weighted average price for trades grouped into an auction event, and the auction event bars are coded as blue or green if the quantity of buyer initiated orders was greater than the quantity of seller initiated orders or the auction event bars are coded as red, orange, or purple if the quantity of seller initiated orders was greater than the quantity of buyer initiated orders; and
- 10 2) an additional auction chart is displayed where the vertical axis is price, the horizontal axis is for time, and vertical bars representing the low to high price range for sets of sequential auction events that are grouped together into larger auction sets covering more time based on pre-specified filter criteria to coincide with logical reversals in buyer/seller trading trends.

31. The method in claim 30, and including the additional steps of:

- 15 generating trend scores known as trend status values (TSV's), or similar name, by filtering auction event values with multiple criteria to determine the direction and magnitude of an overall price trend during an auction event as being either upward, downward or neutral , wherein by considering said display screen of said trading and auction chart(s), said plotting of iconic shapes and iconic attributes, said integrated list of bid/ask offers, said listening to audible tones, and said color coding of the listing of time and sales for market data, traders are able to determine if a trading pattern is composed more by buyers or by sellers, if orders placed by buyers or sellers are larger or smaller, if the book of bid/ask offers is changing or likely to continue to change directionally based on buying or selling activity, and thereby determine that trading is directionally biased into an upward or downward trend based on orders originating
- 20 from buyers or sellers, and further determining the strength/magnitude of said buying and selling activity thereby being able to logically infer the likelihood of continued directionally biased price action, increasing the probability of a trader making a profit from buying low and selling high through the use of said rapid order entry made possible by using computer pointing devices in combination with said display screen.